

Preliminary Structural Project Report For Bridge Deck Replacement Project

Structure: 2C-495, I-70 EB Bridge over Eagle Canyon



Project Manager:

Project Number:

PIN number:

CID number:

FY: 2011

UDOT

Structures Division

Region 4

Prepared by

Daniel Page/Updated by Chris Potter

November 2006

Reviewed By Structures Group: 11/21/2006

REPORT SUMMARY

Scope of Project:

1. Purpose of Report

This report presents a conceptual overview of a project to replace a bridge deck on structure 2C-495. This bridge is located in Region 4 on I-70 EB at MP 119.607. This report is intended to convey the need, scope, schedule, budget, safety, and quality control process for the project.

2. Project Information

Region: 4 **Route No.:** I-70 **Date:** November 2006

Project Name: Bridge Deck Replacement, 2C-495; I-70 EB Bridge over Eagle Canyon

R.P.: 119.607

Project Number:

PIN:

CID:

Project Design: Bridge: UDOT Structures Division; Region 4 Pre-Construction

Project Mgr:

3. Plan:

There are no immediate plans to widen the I-70 corridor in this area.

Reconstruction of the bridge deck, maintenance to the structural steel members and access upgrades are recommended at this time.

4. Work items to be completed:

According to the latest bridge inspection, which was completed in November of 2005, this bridge requires extensive work including:

- Remove and Replace Concrete Deck & Approach Slabs
- Remove and Replace Roadway Transitions at both ends
- Polymer Overlay on Deck & Approach Slabs
- Seal Parapets
- Spot Clean & Touchup Paint Exterior of Arches
- Clean and Paint Arch Interiors
- Replace Shear Bolts (2) at Column Base Plate to Arch Connection South Arch, Column 2
- Caulk All Arch Splices
- Reattach Stainless Steel Access Cable Lines
- Install New Inspection Access Platforms that are Adequate Size
- Extend Access Ladders to Top of Columns and Retrofit with Platforms, Cages and a safety Tie Off System

5. Work items to be deferred:

Roadway and safety items beyond what is related to the bridge repairs will not be included.

6. Design Exceptions:

With the new design of the bridge there are no design exceptions expected.

7. Maintenance Considerations:

Region 4 Maintenance Station 4436 should be included in the concept development.

8. Construction Considerations:

Accelerated Bridge Construction **shall** be evaluated for this project, including the following methods but not limited to: 1) Pre-cast Bridge Deck, 2) Build the new bridge off to the side and use a SPMT to place the bridge into it's new position. It is essential that impacts to I-70 be minimal. Limitations of Operations, Incentives, A+B, CMGC, and the use of Rapid Deck Replacement methods and other specifications should be considered when demolishing and replacing the bridge deck.

Closure of the bridge during construction will be necessary and will require the construction of traffic crossovers. Bridge closures must be coordinated through the Region PICs.

9. Risk Analysis: (None anticipated at this time)

10. Development Process:

New or Major Reconstruction	_____
Rehabilitation	_____x_____
Preservation	_____

Schedule of Project:

To get the best quality and bid prices, it is expected that this project be advertised no later than **April 31, 2011**. Design should take no longer than one month. Construction should be completed in summer season. A tentative schedule is:

1.	Begin Design Phase	FALL	2010
2.	Advertisement Date	WINTER	2010
3.	Begin Construction	SPRING	2011
4.	Completion of Construction	SUMMER	2011

Budget of Project:

1. **Funding Source:** Highway Bridge Program Fund
2. **Amount Programmed:** \$7.8 Million
3. **Cost Estimate:** \$7,751,673

The scope of this bridge project is to replace the bridge deck. Two bridge deck replacement alternatives exist, 1) Conventional Bridge Deck Replacement, and 2) Pre-Fabricated Deck Replacement.

Structures Recommended alternative is Alternative 2, Pre-Fabricated Deck Replacement.

Conventional Bridge Deck Replacement

2C-495; I-70 EB Bridge over Eagle Canyon			
Item	Quantity	Unit	
Structure Items			
Remove & Replace Bridge Deck (34' X 489')	16626	SF	
Remove & Replace Approach Slabs (34' X 15')	1	LUMP	
Asphalt Overlay & Membrane (Deck & Approach Slabs)	17646	SF	
Seal Parapets	1010	LF	
Spot Clean and Touchup Paint Exterior	1	LUMP	
Replace Shear Bolts	2	EA	
Caulk Arch Splices	1	LUMP	
Safety Upgrades to the Structure (Inspection Access Platforms, Steel Cables, Ladders)	2	EA	
Remove & Replace Expansion Joint	2	EA	
Clean & Paint Arch Interiors	1	LUMP	
Roadway Items			
Roadway Transitions for the Structure	1	LUMP	
Misc. Items			
Traffic Control w/Crossovers (3 miles)	1	LUMP	
Mobilization	1	LUMP	
MOT	1	LUMP	
Public Information Services	1	LUMP	
Project Subtotal			
PE/CE 20%			
20% Contingency			
Project Total			\$4,660,674.20
Inflation Rate @ 6% Over 5 Years			

Pre-Fabricated Deck Replacement

2C-495; I-70 EB Bridge over Eagle Canyon

Item	Quantity	Unit	
Structure Items			
Remove & Replace Bridge Deck (34' X 489')	16626	SF	
Remove & Replace Approach Slabs (34' X 15')	1	LUMP	
Asphalt Overlay & Membrane (Deck & Approach Slabs)	17646	SF	
Seal Parapets	1010	LF	
Spot Clean and Touchup Paint Exterior	1	LUMP	
Replace Shear Bolts	2	EA	
Caulk Arch Splices	1	LUMP	
Safety Upgrades to the Structure (Inspection Access Platforms, Steel Cables, Ladders)	2	EA	
Remove & Replace Expansion Joint	2	EA	
Clean & Paint Arch Interiors	1	LUMP	
Roadway Items			
Roadway Transitions for the Structure	1	LUMP	
Misc. Items			
Traffic Control w/Crossovers (3 miles)	1	LUMP	
Mobilization	1	LUMP	
MOT	1	LUMP	
Public Information Services	1	LUMP	
Innovative Contracting	1	LUMP	
Project Subtotal			
PE/CE 30%			
30% Contingency			
Project Total			\$5,792,500.80
Inflation Rate @ 6% Over 5 Years			

Location Map



2C-495